

713

PENNSYLVANIA GEOLOGICAL SURVEY

Harrisburg, Penna.

Carlyle Gray, *State Geologist*

P-38-2
D-11

#1

FIELD TRIP
GUIDE

Plant Fossil Locality
LEBANON COUNTY



DEPARTMENT OF INTERNAL AFFAIRS

Genevieve Blatt, *Secretary*

ITINERARY

Mileage

0.0	At the entrance to Parking Lot #2, located immediately behind the Main Capitol Building, is the Mile monument that is used
0.05	for the measurement of distances on all Pennsylvania's highways. The trip will start from here with all cars facing North on Commonwealth Avenue.
0.05	Turn right. Finance building is to your left (north). The
0.1	Education Building can be seen to your right on the opposite side of the sunken park.
0.15	Watch for approaching traffic from the left (north). Turn
0.5	right and keep to the left-hand side of the street. Cross bridge (State Street Bridge).
0.65	Stop light. Continue straight ahead following U. S. Route 22.
0.2	
0.85	Stop light.
0.1	
0.95	Stop light.
0.1	
1.05	Stop light.
0.3	
1.35	For an interesting short side trip turn right here and take the park road to the top of the hill. (Bear right at every intersection up the hill). Park your car facing the retaining wall of the observation area.

This is one of the best places to view the Susquehanna Water Gap in Blue Mountain and the different erosion levels of the mountains and valleys to the north and south. It was commonly thought that the various levels seen from here represented peneplain surfaces. The Schooley peneplain was believed to be represented by the relatively even-crested tops of the mountains at 1,400 to 1,600 feet elevation and the Harrisburg peneplain to be developed on the Ordovician shales and limestones at roughly 600 feet. Today many geologists believe, however, that these surfaces are a result of erosional equilibrium within stream systems where uniform erosion of uniform rocks takes place.

Return to cars and proceed to bottom of hill and entrance to park. Turn right and continue east on Route 22.

2.05 Stop light. Penbrook.

0.2

2.25 Stop light.

0.2

2.45 Stop light.

0.25

2.70 Stop light. Paxtang Avenue.

0.35

3.05 Stop light. 36th Street.

0.9

3.95 By-Pass around east side of Harrisburg.

0.3

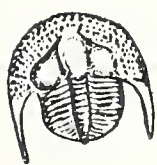
4.25 Stop light.

Mileage

	0.3	
4.55		Stop light. Colonial Park Plaza shopping center.
	0.3	
4.85		Stop light.
	1.8	
6.65		Last stop light. Intersection of Mountain Road and Route 22.
	0.65	
7.3		A massive buff-weathering sandstone of the Martinsburg Formation crops out on the left (north) side of the highway.
	2.15	
9.45		View of Manada Gap in Blue Mountain to the north.
	10.2	
19.65		A deep cut in the Martinsburg Formation exposes gray shale and thin-bedded limestone beds. Platy, non-fossiliferous, medium-gray-colored limestones with thin shale partings are a common feature in the formation of this area.
	1.7	
21.35		View of Indiantown Gap in Blue Mountain.
	2.5	
23.85		Lebanon Exit on Route 22. Continue under bridge. Turn right, leaving Route 22, and stop at intersection with Route 72. Turn right onto Route 72.
	2.4	
26.25		Village of Lickdale.
	2.0	
28.25		Swatara Gap. This is a water gap in Blue Mountain, the first mountain of the Folded Appalachian physiographic province.

Swatara Creek may be seen to your right (east) flowing through the gap. The creek was forceful enough to wear its way down through the rocks, making this prominent gap. Such a feature often represents the location of a fault or fracture zone whose path represented the path of easiest access and resistance for the stream. Rocks of two ages are in contact in a small quarry on the left (west) side of the road; the Tuscarora Quartzite is Silurian in age (425 million years) and the Martinsburg Formation is Ordovician (500 million years).

0.6 This same quarry has yielded a large number of Ordovician fossils to collectors. About 235 feet of fossiliferous beds are exposed in the open pit and along the hillside to the south. The fauna of the Martinsburg Formation which can be collected in the quarry are illustrated below.



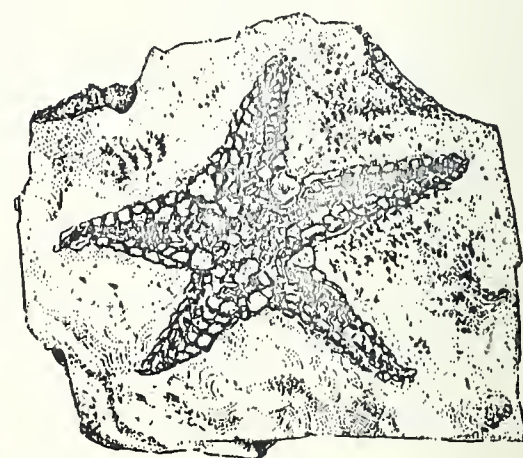
Trilobite - Cryptolithus



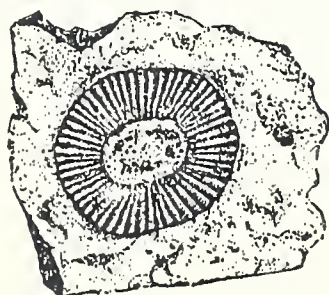
Brachiopod



Graptolite



Starfish

Crinoid stem
(cross section)

Gastropod



Orthoceras



Pelecypod

- 28.85 Junction of Route 443. Continue straight ahead.
- 1.6
- 30.45 Turn left toward Tower City. Note the excellent exposures of
- 5.1 Pottsville Conglomerate as you cross the crest of Sharp Mountain.
- 35.55 Small coal strip pit on left (west) side of the road. Park car at the entrance and walk into the mine dumps at the far end of the strip pit.

This plant fossil locality is in the heart of what is called "the southern fishtail" of the Anthracite region, a part of the Folded Appalachian physiographic province. At Swatara Gap you crossed over Blue Mountain, the first ridge of this province, and then Second Mountain and Sharp Mountain; you are now standing on the south flank of Stony Mountain.

The coal exposed in the strip pits is associated with white to gray sandstones and black carbonaceous shales. All of the coals, sandstones, and shales between Stony and Sharp Mountains belong to Post-Pottsville Formations of Pennsylvania age (310 million years).

The beds are all nearly vertical with the axis of a major syncline located about one-fourth mile south of this strip pit. The nearly parallel ridges of Stony and Sharp Mountains are underlain by the Pottsville Conglomerate which is joined at depth forming the local bottom of the syncline in which these coals are located. If you look closely at the two sets of strippings present,

you will see there were two main coal beds that were mined and that these beds dip south toward the synclinal axis.

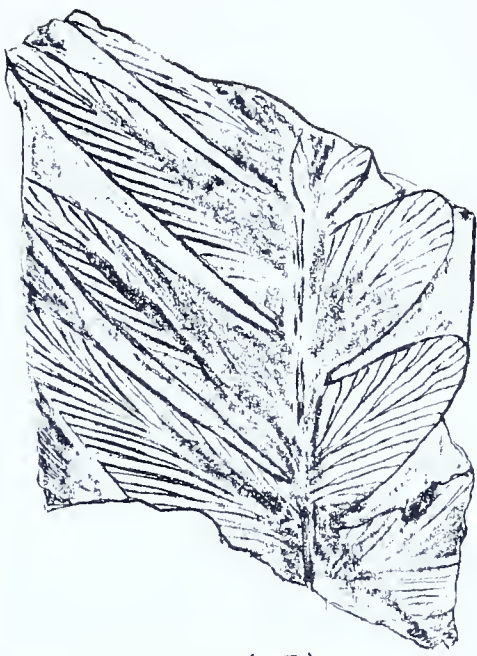
The flora present here in the coal formations can best be described by illustrations. The following pages of drawings can be used for comparison and identification of collected material.





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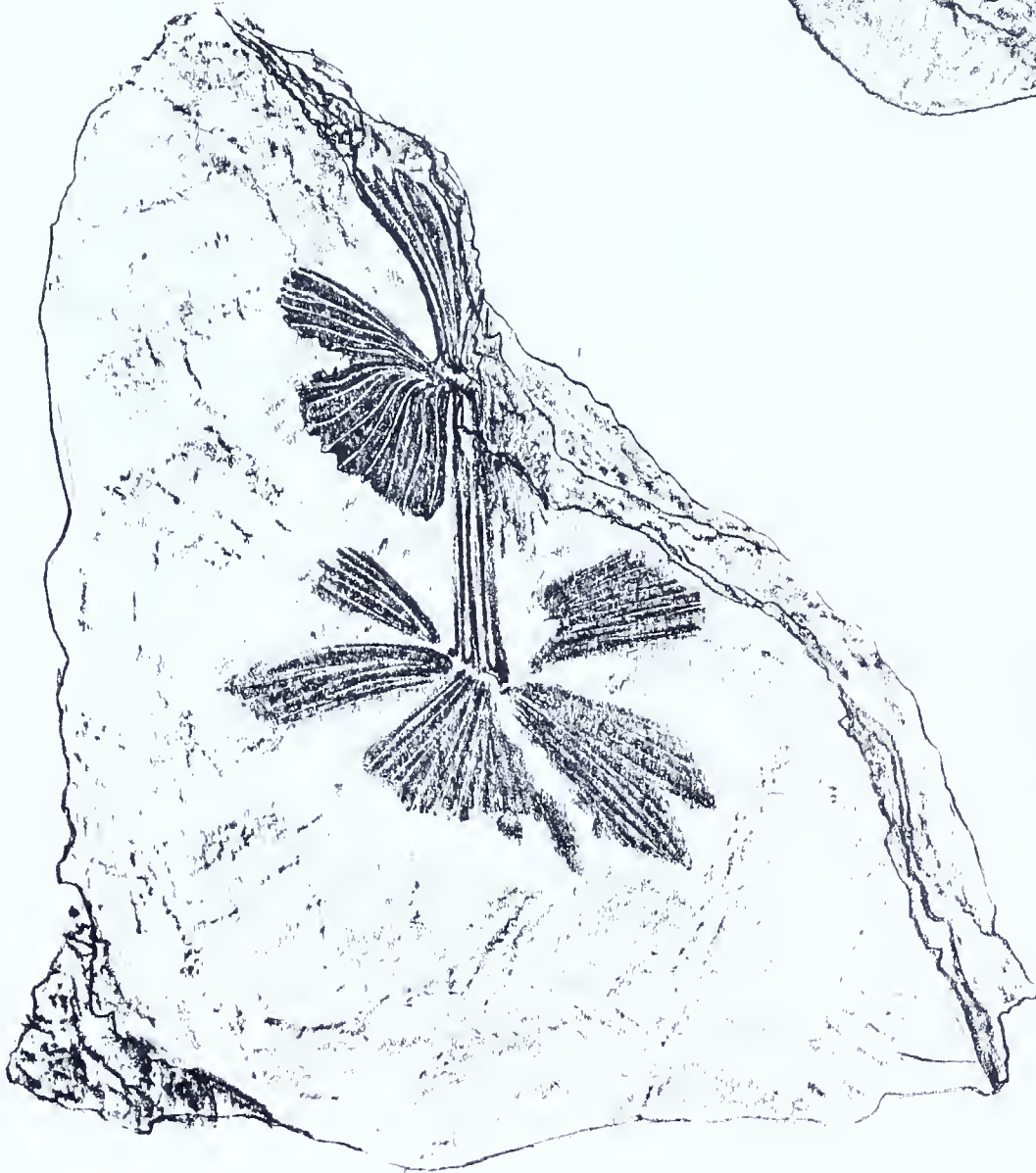
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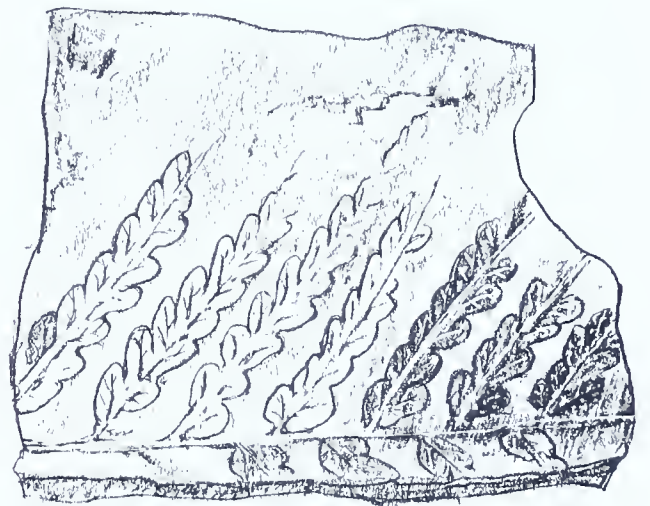
Mariopteris (x3)



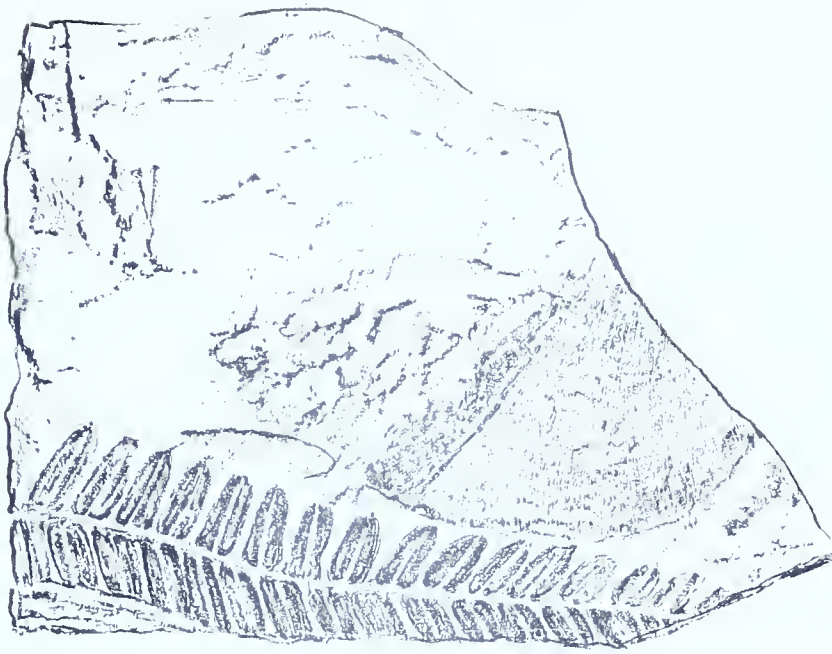
Odontopteris (x 3½)



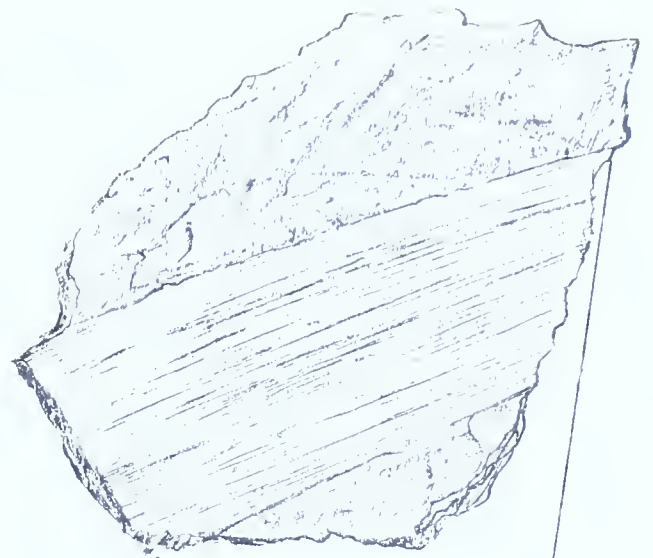
Sphenophyllum sp (x3)



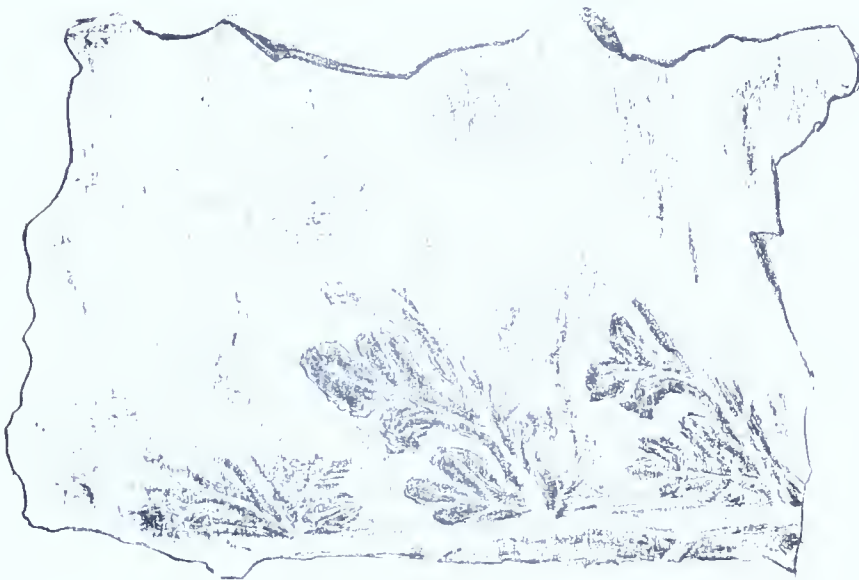
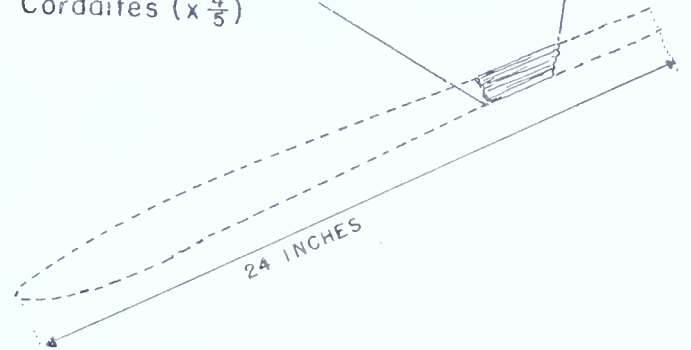
Pecopteris plumosa (x2½)



Pecopteris pennaeformis (x 2½)



Cordaites (x 4/5)



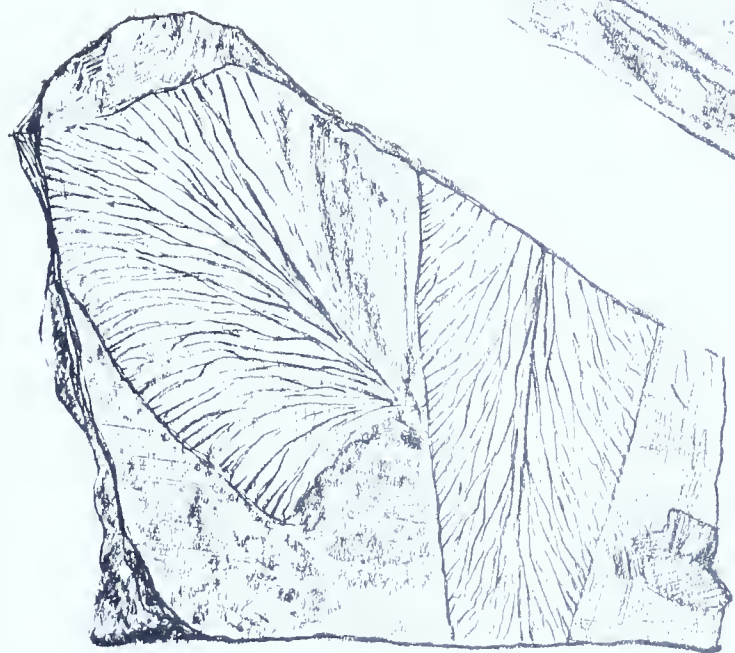
Sphenopteris (?) (x 5½)



Pecopteris orenulata (?) (x 2½)



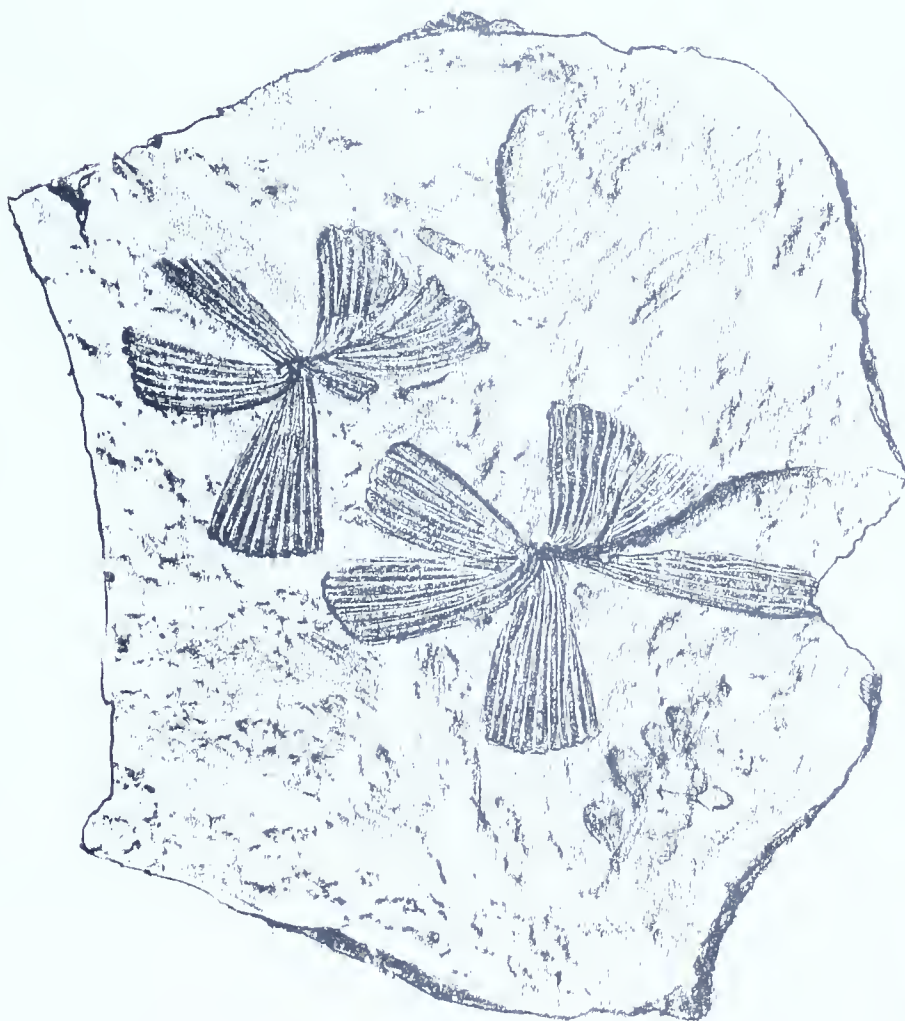
Portion of a pinna terminal of a Sphenopterid (x5)



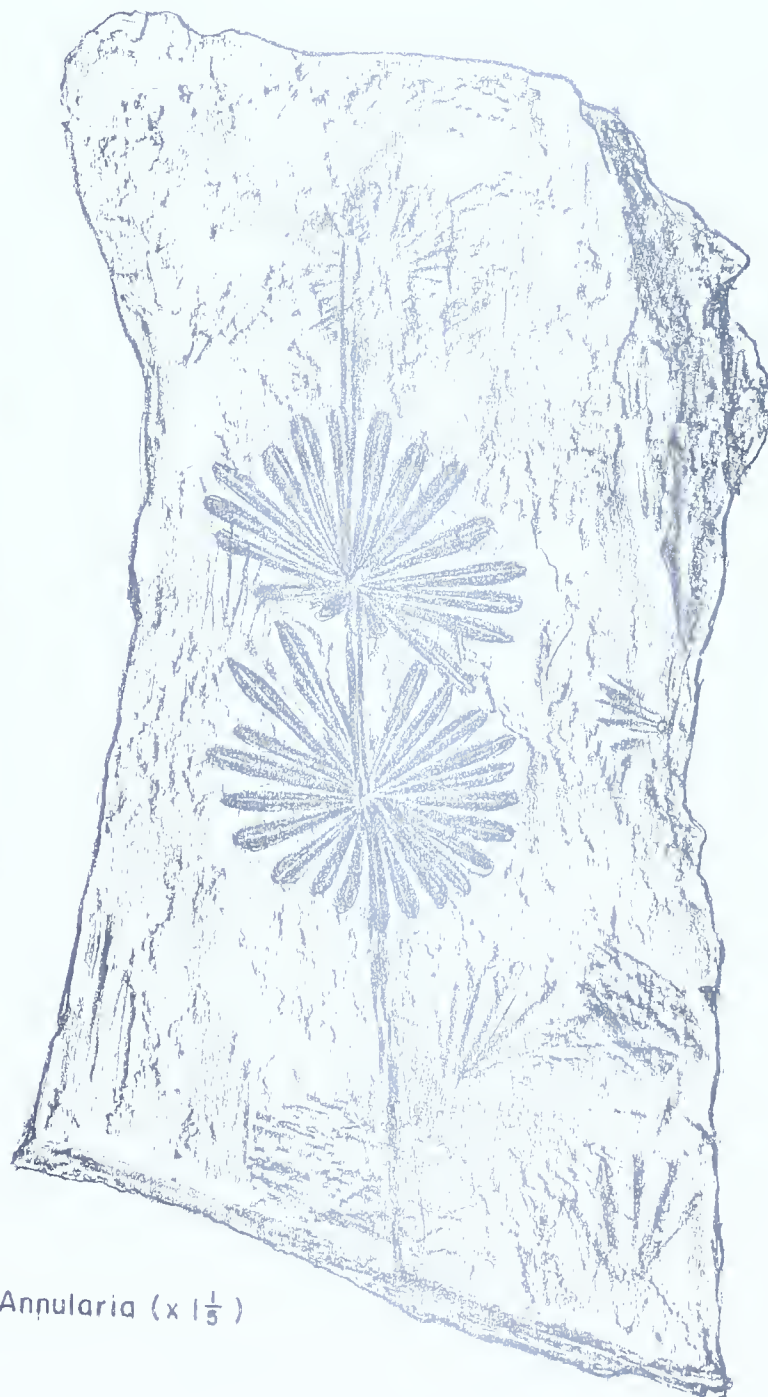
Neuropteris (x 4)



Diplothmema (x 4)



Sphenophyllum (x 4)



Annularia (x $1\frac{1}{5}$)

